

Appl. No. : 10/665,693  
Filed : September 17, 2003

### AMENDMENTS TO THE CLAIMS

1. **(Currently Amended)** A semiconductor processing tool comprising:
  - a first substrate handling chamber;
  - a front docking port located on the outside surface of the first substrate handling chamber;
  - a robot arm located in the first substrate handling chamber;
  - a loadlock chamber joined to the first substrate handling chamber; and
  - a buffer station adjacent the first substrate handling chamber and located between the loadlock chamber and the front docking port, the buffer station being configured to provide a less contaminated inert internal environment as compared with the internal environment of a cassette docked to the docking port, the buffer station having a rack configured to have multiple shelves for holding substrates, wherein the buffer station is dimensioned and configured to hold more substrates than the loadlock chamber.
2. **(Original)** The semiconductor processing tool according to Claim 1, wherein the rack is configured to support a plurality of 300 mm silicon wafers.
3. **(Original)** The semiconductor processing tool according to Claim 1, further comprising a rear substrate handling chamber, where the loadlock chamber is located between the first substrate handling chamber and the rear substrate handling chamber.
4. **(Original)** The semiconductor processing tool according to Claim 1, wherein the buffer station is further configured to create an inert environment which is selectively isolated from the first substrate handling chamber.
5. **(Original)** The semiconductor processing tool according to Claim 4, wherein the buffer station is further configured to be selectively purged.
6. **(Original)** The semiconductor processing tool according to Claim 4, wherein the buffer station rack is configured to allow the robot arm to be capable of accessing the entire buffer station rack through the use of a z-motion of the robot arm.
7. **(Original)** The semiconductor processing tool according to Claim 1, wherein the buffer station is configured to have a internal volume less than or equal to about 18.3 liters.
8. **(Original)** The semiconductor processing tool according to Claim 7, wherein the buffer station rack is configured to support twenty-five 300 mm silicon wafers.

Appl. No. : 10/665,693  
Filed : September 17, 2003

9. (Previously Presented) The semiconductor processing tool according to Claim 1, wherein the loadlock chamber is configured to have an internal volume less than or equal to about 9.156 liters.

10. (Currently Amended) A semiconductor processing tool comprising:  
a first substrate handling chamber;  
a front docking port located on the outside surface of the first substrate handling chamber;  
a robot arm located in the first substrate handling chamber;  
a loadlock chamber joined to the first substrate handling chamber; and  
a buffer station located between the loadlock chamber and the front docking port,  
the buffer station being configured to provide a less contaminated inert internal  
environment as compared with the internal environment of a cassette docked to the  
docking port, the buffer station having a rack configured to have multiple shelves for  
holding substrates. The semiconductor processing tool according to Claim 1, wherein the shelves of the buffer station rack have a reduced pitch relative to shelves of a front opening unified pod (FOUP) for the same size substrates.

11. (Original) The semiconductor processing tool according to Claim 1, wherein the robot arm is configured to employ a variable pitch end effector having multiple end effector shelves.

12. (Original) The semiconductor processing tool according to Claim 1, wherein the first substrate handling chamber is configured to operate at atmospheric pressure.

13. (Original) The semiconductor processing tool according to Claim 1, wherein the first substrate handling chamber is configured to operate at reduced pressure.

14. (Currently Amended) A semiconductor processing tool comprising:  
a substrate handling chamber;  
a front docking port located on an outside surface of the substrate handling chamber, the port being capable of mating with a cassette;  
a cassette rack internal to the docked cassette;

Appl. No. : 10/665,693  
Filed : September 17, 2003

a purgeable buffer station joined with and adjacent the substrate handling chamber, the buffer station being located in position downstream of the front docking port; and

a buffer station rack within the buffer station being configured to have multiple slots for holding substrates; and

wherein the buffer station rack has a reduced relative spacing between the rack slots as compared with a relative spacing between slots of the cassette.

15. (Original) The semiconductor processing tool according to Claim 14, further comprising a loadlock chamber joined with the substrate handling chamber, the loadlock chamber having a loadlock rack with a substrate capacity of less than one third of a substrate capacity of the cassette.

16. (Original) The semiconductor processing tool according to Claim 15, further comprising a rear substrate handling chamber where the loadlock chamber is located between the substrate handling chamber and the rear substrate handling chamber.

17. (Original) The semiconductor processing tool according to Claim 15, wherein the substrate capacity of the loadlock chamber is 1 to 7 substrates.

18. (Original) The semiconductor processing tool according to Claim 15, wherein the loadlock rack is configured to support a plurality of 300 mm silicon wafers.

19. (Original) The semiconductor processing tool according to Claim 14, wherein the substrate handling chamber is configured to operate at standard atmospheric pressure.

20. (Original) The semiconductor processing tool according to Claim 14, wherein the substrate handling chamber is configured to operate at reduced pressure.

21. (Cancelled)

22. (Original) The semiconductor processing tool according to Claim 14, wherein the buffer station rack is a reduced pitch rack configured to allow a robot arm to be capable of accessing the entire buffer station rack through the use of a robot arm's z-motion.

23. (Original) The semiconductor processing tool according to Claim 14, further comprising a robot arm configured to have a variable pitch end effector designed to transfer multiple substrates from the cassette rack to the buffer station rack, the cassette rack having unequal slot pitch relative to the buffer station rack.